UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/533,421	03/22/2000	Charles S. Roberson	CISCP794	8630

54406 7590 12/28/2005

AKA CHAN LLP / CISCO
900 LAFAYETTE STREET
SUITE 710
SANTA CLARA, CA 95050

EXAMINER	
MERED, HABTE	

ART UNIT	PAPER NUMBER
2662	

DATE MAILED: 12/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/533,421	ROBERSON, CHARLES S.	
	Examiner	Art Unit	
	Habte Mered	2662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *11 October 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-10 and 12-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-10 and 12-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. The amendment filed on 11 October 2005 has been entered and fully considered.

2. Claims 2 and 11 are cancelled.

3. Claims 1, 3-10, and 12-22 are pending.

Drawings

4. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the backplane forming a plurality of data buses, the data buses, and the communication links between the plurality of cards claimed in claims 1, 10, 19, 20, and 21 are not shown in any of the figures and must be shown or the features canceled from the claims and no new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an

application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

5. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign mentioned in the description: Label 10, mentioned on Page 8 in Line 19 of the Specification, is not included in Figure 1. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. **Claims 1, 10, 19, 20, and 21** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject

matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

8. In **claims 1, 10, 19, 20, and 21** the ability to monitor the operational status for each one of the communication links between the plurality of cards is claimed. The support provided for this limitation is simply a re-statement of the claimed limitation as indicated in the Specification on Page 11, in Lines 25-32 and Page 17 in Lines 30-32. The support provided in the Specification on Page 18, Lines 10-15 is very specific to detecting the status of a card. The support provided does not enable one skilled in the art to make or use the invention because it is not clear at all how the Equipment Link State Manager (ELSM) 820 shown in Figure 8 monitors and maintains information about each communication link. Simply put, how and using what mechanism is the Equipment Link State Manager 820 able to obtain communication link status information in general and status information of communication links between cards in particular?

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. **Claim 1, 10, 19, 20, and 21** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

11. **Claims 1, 10, 19, 20, and 21** recite that a cross-connect system has a "plurality of cards" and a "plurality of interface cards". It is not clear whether reference is made to the same plurality of cards or to different sets of cards.

12. In **claims 1, 10, 19, 20, and 21** it is not clear which communication links are referred to in the phrase "communication links between the plurality of cards". In Figure 1, there are links between the plurality of subsystems, not between cards, and only in the Data Plane.

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

14. **Claims 1, 3, 6, 10, 12, 15, 20, 21, and 22,** as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Cantwell et al (US 6, 370, 155), hereinafter referred to as Cantwell, in view of Barker et al (US 6, 363, 421), hereinafter referred to as Barker.

15. Regarding **claims 1, 10, 20, and 21**, Cantwell discloses a method for controlling the operation of a flexible cross-connect system **(Figure 1)** which has a plurality of cards **(Figure 1, elements 28 and 30; Column 6, Lines 5-10)** including an active control unit **(Figure 1, element 12, Column 3, Lines 26 and 40-45)**, a redundant control unit **(Figure 1, elements 12 A & B; Column 3, Lines 37-40)**, a plurality of interface cards **(Figure 1, elements 28 and 30; Column 6, Lines 5-10)**, an active cross-connect unit, a redundant cross-connect unit **(Figure 1, elements 24 and 26; Column 4, Lines 1-10)**, and a backplane forming a plurality of data buses **(Column 13,**

Lines 63-67; Column 16, Lines 33-38 and Column 18, Lines 40-45. In Figure 5 the Network Interface card is shown connected to the backplane as further illustrated in Column 13, Lines 63-67), the data buses acting as communications links between the plurality of cards **(See Column 10, Lines 42-45 with respect to Figure 4 and Column 11, Lines 5-10 with respect to Figure 3)**, that comprises:

monitoring the operational status for each one of the plurality of cards and each one of the communications links between the plurality of cards within the flexible cross-connect system; **(Cantwell teaches monitoring the operational status of the cards in terms of detecting fuse failures and fuse panel power failures as well as monitoring the operational status of links by monitoring analog and digital signal loss as illustrated in Column 15, Lines 30-35 and 55-60. Communication link monitoring is also provided as part of DS1 path and line performance monitoring. Column 12, Lines 41, 47, and 55; Column 13, Lines 7, Line 12, and 19; Column 15, Line 58; Column 17, Lines 45-48;)**

determining when the operational status of any of the plurality of cards or the communications links between the plurality of cards indicates that the card or the communications link between the plurality of cards is non-operational; **(Column 12, Lines 41, 47 , and 55; Column 13, Lines 7, Line 12, and 19; Column 15, Line 58; Column 17, Lines 45-48; Performance monitoring of network elements involves data collection as well as determining the operational status of network elements by comparing the observed test results to predetermined threshold values)**

autonomously switching from the non-operational active card to an associated redundant card when the operational status of the non-operational active card is determined or from the non-operational active communications link between the plurality of cards to an associated redundant communications link between the plurality of cards when the operational status of the non-operational active communications link between the plurality- of cards is determined; **(Column 16, Lines 41-46;Column 17, Lines 45-48;. Cantwell's system allows autonomous switching at the network interface level and at the system communication link level if the non-operational active card's or active link's performance monitoring indicated the need to switch to the redundant card or link respectively.)**

determining when the non-operational active card or the non-operational active communications link between the plurality of cards requires maintenance; **(Column 2, Lines 42-49; Column 6, Line 28; Column 9, Lines 30-32; Cantwell's system also determines that a specific card or link needs maintenance.)**.

Cantwell, however, does not expressly disclose reporting maintenance is required for non-operational cards or links.

Barker discloses a system and a method to remotely manage any network element.

Barker discloses a system that reports maintenance is required for the non-operational active card or the non-operational active communications links between the plurality of cards when it is determined that the non-operational active card or the non-operational active communications link between the plurality of cards requires

maintenance. **(Barker uses SNMP protocol to monitor and get status from the network entities it monitors. See Column 4, Lines 43-48 and 56-62. Barker further indicates that different messages are reported to the Element Management System including operational state change (Column 34, Item1), Alarms (Column 34, Item 2), Information Message (Column 34, Item 3), and Configuration Change (Column 34, Item 4). See also Column 1, Lines 49-54. Further, Barker teaches that alarms indicate a condition of unexpected nature, which requires special and persistent technician notification that is tantamount to indicating maintenance is required to one skilled in the art.)**

It would have been obvious to a person of ordinary skill in the art at the time of the invention to use the maintenance-reporting scheme of Barker in Cantwell's invention when a card or a link fails. One would have been motivated to do this because having ability to remotely manage a network element such as a digital cross-connect is essential in a large telecommunication network as stated by Barker in Column 1, Line 20 and will reduce operation and labor cost by remotely managing the cross-connect nodes in the network.

16. Regarding **claims 3 and 12**, Cantwell disclosed the aforementioned invention, including the method of preventing communications from being sent to the non-operational active card or over the non-operational active communication link. **(In telecommunication switching circuitry any card or link made out of service (OOS) and unavailable is unable to communicate with other network elements and is a status used to indicate "an entity is unavailable" to conduct normal operations.**

In Cantwell's system the status OOS is used for both cards and links. See Column 7, Lines 38-42.)

17. Regarding **claims 6 and 15**, Cantwell discloses a method for controlling the operation of a flexible cross-connect system **(Figure 1)** which has a plurality of cards **(Figure 1, elements 28 and 30; Column 6, Lines 5-10)** including an active control unit **(Figure 1, element 12, Column 3, Lines 26 and 40-45)**, a redundant control unit **(Figure 1, elements 12 A & B; Column 3, Lines 37-40)**, a plurality of interface cards **(Figure 1, elements 28 and 30; Column 6, Lines 5-10)**, an active cross-connect unit, a redundant cross-connect unit **(Figure 1, elements 24 and 26; Column 4, Lines 1-10)**, and a backplane forming a plurality of data buses **(Column 13, Lines 63-67; Column 16, Lines 33-38 and Column 18, Lines 40-45. In Figure 5 the Network Interface card is shown connected to the backplane as further illustrated in Column 13, Lines 63-67)**, the data buses acting as communications links between the plurality of cards **(See Column 10, Lines 42-45 with respect to Figure 4 and Column 11, Lines 5-10 with respect to Figure 3)**, that comprises:

monitoring the operational status for each one of the plurality of cards and each one of the communications links between the plurality of cards within the flexible cross-connect system; **(Cantwell teaches monitoring the operational status of the cards in terms of detecting fuse failures and fuse panel power failures as well as monitoring the operational status of links by monitoring analog and digital signal loss as illustrated in Column 15, Lines 30-35 and 55-60. Communication link monitoring is also provided as part of DS1 path and line performance monitoring. Column 12,**

Lines 41, 47, and 55; Column 13, Lines 7, Line 12, and 19; Column 15, Line 58; Column 17, Lines 45-48;)

determining when the operational status of any of the plurality of cards or the communications links between the plurality of cards indicates that the card or the communications link between the plurality of cards is non-operational; **(Column 12, Lines 41, 47 , and 55; Column 13, Lines 7, Line 12, and 19; Column 15, Line 58; Column 17, Lines 45-48; Performance monitoring of network elements involves data collection as well as determining the operational status of network elements by comparing the observed test results to predetermined threshold values)**

autonomously switching from the non-operational active card to an associated redundant card when the operational status of the non-operational active card is determined or from the non-operational active communications link between the plurality of cards to an associated redundant communications link between the plurality of cards when the operational status of the non-operational active communications link between the plurality- of cards is determined; **(Column 16, Lines 41-46;Column 17, Lines 45-48;. Cantwell's system allows autonomous switching at the network interface level and at the system communication link level if the non-operational active card's or active link's performance monitoring indicated the need to switch to the redundant card or link respectively.)**

Cantwell, however, does not expressly disclose a method that includes detecting and reporting when any card or communications link between the plurality of cards has a change in operational status.

Barker discloses a method of detecting and reporting when any card or communications link between the plurality of cards has a change in operational status. **(Barker indicates that status change of any network element remotely managed and monitored by his system is detected through the use of trapping and polling. See Column 25, Lines 40-65 and Column 28, Lines 20-35; and Column 1)**

It would have been obvious to a person of ordinary skill in the art at the time of the invention to use the maintenance-reporting scheme of Barker in Cantwell's invention when a card or a link fails. One would have been motivated to do this because having the failed component up and running again would ensure that the current connection has a backup connection for when it breaks down in the future guaranteeing continued path protection and end-to-end path integrity. Further including Barker's method and system in Cantwell's system eases remote network management and cuts down on operation and labor cost.

18. Regarding **claim 22**, Cantwell discloses a method wherein the communication links between the plurality of cards include at least a first communications link between the plurality of interface cards **(See in Figure 2 how network 28 and network 30 are linked via a communication link as further illustrated in Column 8, Lines 3-10.)** and at least a second communications link between at least one interface card of the plurality of interface cards and one at least one of the active cross-connect unit, the redundant cross-connect unit, the active cross-connect unit, or the redundant control unit (See in Figure 2, network interface cards 28 and 30 in direct communication with

both the active cross-connect **(matrix-a) and the redundant cross-connect (matrix-b) via a communication link as further illustrated in Column 8, Lines 39-50)**.

19. **Claims 7, 8, 16 and 17** are rejected under 35 U.S.C. 103(a) as being unpatentable over Cantwell et al (US 6,370,155), hereinafter Cantwell, in view of Barker et al (US 6, 363, 421), hereinafter referred to as Barker, as applied to claims 1 and 3, above, and further in view of Fowler (Henry Fowler, "TMN-Based Broadband ATM Network", IEEE Communication Magazine, March 1995).

20. Regarding **claims 7 and 16**, the combination of Cantwell and Barker teaches all aspects of the claimed invention as set forth in the rejections of claims 6 and 15 respectively but does not expressly disclose reporting the change in operational status after a predetermined period of time has expired.

Fowler discloses the Telecommunication Management Network (TMN) interfaces being defined for remote Management Systems to communicate with ATM network elements (NEs) and other management systems.

Fowler discloses an ATM network element issuing a failure notice and reporting it to its remote Management System after an alarm indication persists for a period of time. **(See Page 78, 2nd Column, 3rd paragraph under "ATM Layer Management" section)**

It would have been obvious to a person of ordinary skill in the art to wait an amount of time as taught by Fowler before issuing the operational change in status of the system disclosed by Cantwell. One would have been motivated to do this to minimize maintenance cost that can arise from transient failures.

21. Regarding **claims 8 and 17**, if the system never meets the time period required for issuing failure notices, then the system will not send any failure notice or change of operational status. Inherently then, the change of operational status has to be discarded.

22. **Claims 4 and 13** are rejected under 35 U.S.C. 103(a) as being unpatentable over Cantwell et al (US 6,370,155), hereinafter Cantwell, in view of Barker et al (US 6, 363, 421), hereinafter referred to as Barker, as applied to claims 1 and 3, above, and further in view of Jun et al (Jun et al, "Stand-by Loading Scheme: An Effective Software Retrofit Method For Switching System", IEEE, Presented at Computer Communications 1998 Proceedings, 06/30/98), hereinafter referred to as Jun.

The combination of Cantwell and Barker teaches all aspects of the claimed invention as set forth in the rejections of claims 3 and 12 but does not disclose that a card is flagged with a non-operational status if the card is receiving a software upgrade.

Jun discloses an effective software retrofit method for a switching system.

Jun discloses that a card is identified with a non-operational status if the card is receiving a software upgrade. **(See Figure 4 and Section 4.1)**

It would have been obvious to a person of ordinary skill in the art at the time of the invention to have the redundant parts in the combination of Cantwell's and Barker's invention operate the same way as described in Jun's system during software upgrade. One would have been motivated to do this because the cards being updated will in effect become non-operational during this process, so the system will want to

seamlessly reroute the communication messages using the redundant parts so that the system does not have to shut down during an upgrade.

23. **Claims 5 and 14** are rejected under 35 U.S.C. 103(a) as being unpatentable over Cantwell et al (US 6,370,155), hereinafter Cantwell, in view of Barker et al (US 6, 363, 421), hereinafter referred to as Barker, as applied to claims 1 and 10 respectively, above, and further in view of Harris (US 5, 771, 274).

The combination of Cantwell and Barker teaches all aspects of the claimed invention as set forth in the rejections of claims 1 and 10 but does not expressly disclose storing all of the past faults and the maintenance record of each card in a database.

Harris discloses a method and apparatus for detecting traffic-affecting failures in a telecommunication network.

Harris discloses a method of recording data related to each card in a database; and updating the database to reflect changes to any of the cards, wherein the changes include maintenance performed on, replacement of, or user configuration changes. **(Column 4, Lines 11-21; Harris discloses adding new alarms to a database that includes data of past alarms that are cleared.)**

It would have been obvious to a person of ordinary skill in the art to keep a record of past problems as disclosed by Harris in the combination of Cantwell and Barker. One would have been motivated to do this because keeping a record of past faults and changes can indicate the overall reliability of a particular system and can indicate when a replacement part or system may be needed.

24. **Claims 9 and 18** are rejected under 35 U.S.C. 103(a) as being unpatentable over Cantwell et al (US 6,370,155), hereinafter Cantwell, in view of Barker et al (US 6, 363, 421), hereinafter referred to as Barker, as applied to claims 1 and 10 respectively, above, and further in view of Badt, JR., (US Pub. No. 2003/0133417), hereinafter referred to as JR.

The combination of Cantwell and Barker teaches all aspects of the claimed invention as set forth in the rejections of claims 1 and 10 but does not expressly disclose the existence of a connection map.

JR. discloses a method of obtaining a topology of the available spare links in a telecommunication network provisioned with a distributed restoration algorithm.

JR. discloses that the flexible cross-connect system is a first node within a network **(Paragraph 172),** and further maintains a connection map for the network. **(Paragraph 174)**.

It would have been obvious to a person of ordinary skill in the art to use the teachings of JR. involving a method keeping a database that tracks the network spare capacity and connection map in the cross-connect units disclosed in both Cantwell's and Barker's systems. One would have been motivated to do so because this data can be stored in a central location at a database at the OSS or at the first node, so that it may be used efficiently for remotely managing network elements at a reduced cost and the data may be provided to the node originating failure notice as soon as failure is detected and reported.

25. **Claim 19**, as best understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over Cantwell et al (US 6,370,155), hereinafter Cantwell, in view of Read et al (US 5, 781, 527), hereinafter referred to as Read, and Badt, JR., (US Pub. No. 2003/0133417), hereinafter referred to as JR.

Cantwell, however, does not expressly disclose reporting maintenance is required for non-operational cards or links. Cantwell also fails to disclose the existence of a connection map associated with the network the flexible cross-connect system is part of.

Read discloses a digital cross-connect system.

Read discloses a system that reports maintenance is required for the non-operational active card or the non-operational active communications link between the plurality of cards when it is determined that the non-operational active card or the non-operational active communications link between the plurality of cards requires maintenance. **(Column 10, Lines 34-35, Lines 47-49, and Lines 57-60;)**

It would have been obvious to a person of ordinary skill in the art at the time of the invention to use the maintenance-reporting scheme of Read in Cantwell's invention when a card or a link fails. One would have been motivated to do this because having the failed component up and running again would ensure that the current connection has a backup connection for when it breaks down in the future guaranteeing continued path protection and end-to-end path integrity.

Cantwell fails to expressly disclose a system that maintains a connection map associated with the flexible cross-connect system, the flexible cross-connect system

being a node in a network, the connection map being arranged to indicate statuses of nodes with the network„ wherein when it is determined that the operational status of any one of the plurality of cards or any one of the communications links between the plurality of cards indicates that the card is non-operational or the communications link between the plurality of cards is non-operational, the connection map is updated to indicate a change in status of the flexible cross-connect system.

JR. discloses a method of obtaining a topology of the available spare links in a telecommunication network provisioned with a distributed restoration algorithm.

JR. discloses a system that maintains a connection map associated with the flexible cross-connect system **(Paragraph 174)**, the flexible cross-connect system being a node in a network **(Paragraph 172)**, the connection map being arranged to indicate statuses of nodes with the network„ wherein when it is determined that the operational status of any one of the plurality of cards or any one of the communications links between the plurality of cards indicates that the card is non-operational or the communications link between the plurality of cards is non-operational, the connection map is updated to indicate a change in status of the flexible cross-connect system. **(Paragraphs 8, 179 and 185; JR.'s discloses a system with the capability to generate a connection map that shows the active nodes along with cards and links and when ever a link or path or card fails the map in the database is updated to reflect the correct status including change in spare capacity.)**

It would have been obvious to a person of ordinary skill in the art to use the teachings of JR. involving a method keeping a database that tracks the network spare

capacity and connection map in the cross-connect units disclosed in both Cantwell's and Read's systems. One would have been motivated to do so because this data can be stored in a central location at a database at the OSS or at the first node, so that it may be used efficiently for remotely managing network elements at a reduced cost and the data may be provided to the node originating failure notice as soon as failure is detected and reported.

Response to Arguments

26. Applicant's arguments filed on 11 October 2005 have been fully considered but they are not persuasive.

27. The Applicant argues, in the Remarks on page 14, lines 9-11, Cantwell fails to teach "autonomously switching from a non-operational active card to an associated redundant card includes switching from an active control unit to a redundant control unit as well as switching from a non-operational active cross-connect unit to a redundant cross-connect unit when appropriate". Examiner respectfully disagrees. First, Examiner points out that this limitation is not claimed and second Cantwell's system does meet this limitation as it has all the redundant components to spare and autonomous switching is supported as stated in Column 16, Lines 41-46 and Column 17, Lines 45-48.

28. In the Remarks, on page 14, Applicant argues that the rejection of claim 1 contains contradictory positions regarding whether the Cantwell teaches communication links between cards. Applicant further presents the same argument for independent claims 6 and 15 on page 16 and for independent claim 19 on page 18. Examiner, in

this current Office Action has clarified his position and the apparent contradictions have been removed.

29. In the Remarks, on page 15, Lines 11-18, Applicant argues that Cantwell teaches monitoring lines and not cards and the lines appear to be within a card and not between cards. Examiner respectfully disagrees. It is the Examiner's position that the citations in Cantwell quoted by the Applicant when taken into proper context do verify that Cantwell's system monitors the operational status of cards and communication links. On Line 36 in Column 12, Cantwell discloses that the interface card is made up of 28 DS1 signals and each DS1 is monitored on the card. Further it shows on Column 12, Line 44 that there are 28 DS1 ports with 1:1 protection. Cantwell's system is very advanced as it provides monitoring at the card level and port level and provides 1:1 protection at the card and port level. The card level switching is documented in Column 16, Lines 41-46. Further in Column 12 in Line 46 Cantwell unambiguously indicates that the network interface card provides DS1 Path, Line and Far End Performance Monitoring. The DS1 Path or line is the link that leaves the network interface card 1X in Figure 1 and is a communication link between network interface card and another entity in the Far End, which can easily be another network interface card. Further more monitoring of cards is disclosed in column 15, Lines 29-35. Finally, the same line of argument holds for the network card interface configured as E1 card.

Conclusion

30. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following US Patents disclose a device that sends an indication that it is receiving software update:

US Patent (6, 122, 639) to Babu et al

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Habte Mered whose telephone number is 571 272 6046. The examiner can normally be reached on Monday to Friday 9:30AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on 571 272 3088. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

HM
12-25-2005

HASSAN KIZOU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600